



# K A N S A S

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## Plague Q&A

### What is plague?

Plague is a disease caused by *Yersinia pestis* (*Y. pestis*), a bacterium found in rodents and their fleas in many areas around the world.

### Is pneumonic plague different from bubonic plague?

Yes. Both are caused by *Yersinia pestis*, but they are spread differently and their symptoms differ. Pneumonic plague can be spread from person to person; bubonic plague cannot. Pneumonic plague affects the lungs and is spread when a person breathes in *Y. pestis* particles in the air. Bubonic plague is spread through the bite of an infected flea or exposure to infected material through a break in the skin. If bubonic plague is not treated, however, the bacteria can spread through the bloodstream and infect the lungs, causing a secondary case of pneumonic plague.

### What are the signs and symptoms of pneumonic plague?

Patients usually have fever, weakness, and rapidly developing pneumonia with shortness of breath, chest pain, cough, and sometimes bloody or watery sputum. Nausea, vomiting, and abdominal pain may also occur. Without early treatment, pneumonic plague usually leads to respiratory failure, shock, and rapid death.

### What is the mortality rate of plague?

About 14% (1 in 7) of all plague cases that have occurred in the United States have proven fatal.

### How do people become infected with pneumonic plague?

Pneumonic plague occurs when *Yersinia pestis* infects the lungs. Pneumonic plague is spread when respiratory droplets from an infected person (or animal) who is coughing or sneezing are inhaled. Becoming infected in this way usually requires direct and close contact with the ill person or animal (within about 6 feet). Pneumonic plague may also occur if a person with bubonic or septicemic plague is untreated and the bacteria spread to the lungs.

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## **Does plague occur naturally?**

Yes. The World Health Organization reports 1,000 to 3,000 cases of plague worldwide every year. An average of 10 to 20 cases occur each year in the southwestern United States. These cases are usually scattered and occur in rural to semi-rural areas. Most cases are of the bubonic form of the disease. Naturally occurring pneumonic plague is uncommon, although small outbreaks do occur. Both types of plague are readily controlled by standard public health response measures.

## **Who is at risk for getting plague?**

Outbreaks in people occur in areas where housing and sanitation conditions are poor. These outbreaks can occur in rural communities or in cities. They are usually associated with infected rats and rat fleas that live in the home.

## **Can a person exposed to pneumonic plague avoid becoming sick?**

Yes. People who have had close contact with an infected person can greatly reduce the chance of becoming sick if they begin treatment within 7 days of their exposure. Treatment consists of taking antibiotics for at least 7 days. People who suspect exposure to pneumonic plague should see a physician.

## **How quickly would someone get sick if exposed to plague bacteria through the air?**

Someone exposed to *Yersinia pestis* would become ill within 1 to 6 days.

## **Can pneumonic plague be treated?**

Yes. According to treatment experts, a patient diagnosed with suspected plague should be hospitalized and medically isolated. Laboratory tests should be done, including blood cultures for plague bacteria and microscopic examination of lymph gland, blood, and sputum samples. Antibiotic treatment should begin as soon as possible after laboratory specimens are taken.

To prevent a high risk of death, antibiotics should be given within 24 hours of the first symptoms. Several types of antibiotics are effective for curing the disease and for preventing it. Early in the response to a bioterrorism attack, the bioagent (plague bacteria) would be tested to determine which antibiotic is most effective against the particular bioagent that was used.

Persons who have been in close contact with a plague patient, particularly a patient with plague pneumonia, should be identified and evaluated.

## **Would enough medication be available in the event of a bioterrorism attack involving pneumonic plague?**

National and state public health officials have large supplies of drugs needed in the event of a bioterrorism attack. These supplies can be sent anywhere in the United States within 12 hours.

## **What should someone do if they suspect they or others have been exposed to plague?**

***Get immediate medical attention:*** To prevent illness, a person who has been exposed to pneumonic plague must receive antibiotic treatment without delay. If an exposed person becomes ill, antibiotics should be administered within 24 hours of their first symptoms to reduce the risk of death.

***Notify authorities:*** Immediately notify local or state health departments so they can begin to investigate and control the problem right away. If bioterrorism is suspected, health departments will notify the CDC, FBI, and other appropriate authorities.

## **How can someone reduce the risk of getting pneumonic plague from another person or giving it to someone else?**

People having direct and close contact with someone with pneumonic plague should wear tightly fitting disposable surgical masks. Patients with the disease should be isolated and medically supervised for at least the first 48 hours of antibiotic treatment. People who have been exposed to a contagious person can be protected from developing plague by receiving prompt antibiotic treatment.

## **How is plague diagnosed?**

The first step is evaluation by a health worker. If the health worker suspects pneumonic plague, samples of the patient's blood, sputum, or lymph node aspirate are sent to a laboratory for testing. Once the laboratory receives the sample, preliminary results can be ready in less than two hours. Confirmation will take longer, usually 24 to 48 hours.

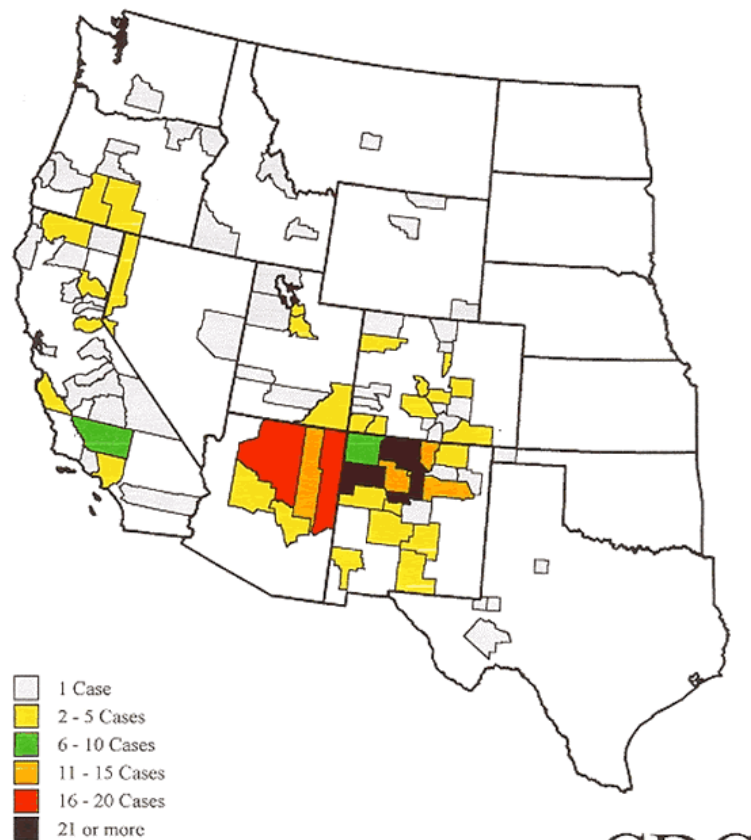
## **How long can plague bacteria exist in the environment?**

*Yersinia pestis* is easily destroyed by sunlight and drying. Even so, when released into air, the bacterium will survive for up to one hour, depending on conditions.

## **Is a vaccine available to prevent pneumonic plague?**

Currently, no licensed plague vaccine is available in the United States. Research is in progress, but a vaccine is not likely to be developed at least for the next several years.

**Reported Human Plague Cases by County:  
U.S., 1970-1997**



**CDC**  
Centers for Disease Control  
and Prevention